

# SPoRT Products in AWIPS II

Science Advisory Committee Meeting

26 – 28 August, 2014

National Space Science and Technology Center, Huntsville, AL



# Overview and Goals

- Replacement Decision Support System (DSS) for:
  - AWIPS I (WFOs)
  - NAWIPS (NCs)
- Designed to be extensible and open
- Easier to incorporate non-standard datasets (don't have to “fake” the system)
- SPoRT's motivations:
  - Raytheon has responsibility for supporting operational products
  - SPoRT supports unique research products
  - Transition data to forecasters in their native DSS
  - **Ensure the continuity of our products as the NWS transitions to AWIPS II**
- Collaborate with the developers at Raytheon and NWS/NCEP



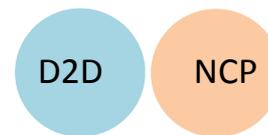


# Transitioning Products into AWIPS II

- Two primary “perspectives”: D2D (WFOs) and NCP
- Workflow (perspective-specific):
  - Ingest (plug-in-based)
  - Visualization (plug-in-based)
  - Menus
  - Color tables
  - Style rules (data sampling)
- Use legacy data files and baseline plug-ins
- Develop custom plug-ins when necessary:
  - Follow NWS software governance model which was co-developed by SPoRT
  - Tested at NWS HQ
  - Once approved, an ATAN (AWIPS Test Authorization Note) is assigned allowing specific sites to install the plug-ins on operational machines
  - If there’s a wide enough user base, seek to have plug-ins baselined
- SPoRT was the first external dev to receive ATAN



*Product Availability*



*Visualization Capabilities*



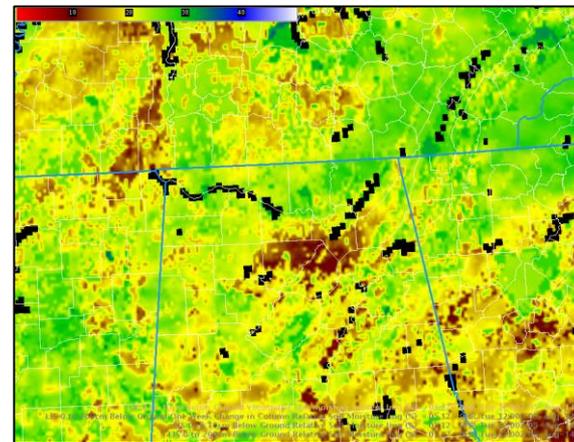
# Transitioned Data: Satellite

- Using the baseline RegionalSat plug-in for ingesting netCDF and the Satellite plug-in for visualization in D2D
  - Slight modifications necessary to files
  - Using same files to support legacy AWIPS I users
  - Only XML config changes necessary to ingest these data in AWIPS II
- All legacy AWIPS I products have been successfully transitioned
- Transitioned 29 products:
  - MODIS (CONUS and Alaska):
    - Single-channels: Vis, LWIR, SWIR, WV, Fog
    - RGBs: Air Mass, Dust, NtMicro, True Color, False Color
  - VIIRS (CONUS and Alaska):
    - Single-channels: DNB Rad, DNB Ref, LWIR, SWIR, Vis, Fog
    - RGBs: Air Mass, DNB Rad, DNB Ref, Dust, False Color, NtMicro, True Color
  - CIRA LPW
  - CIRA GOES Sounder Air Mass
  - GOES-R Convective Initiation
  - NESDIS QPE (AK, CONUS, HI, PR)
  - SST Comp and Latency (N. Hemisphere)

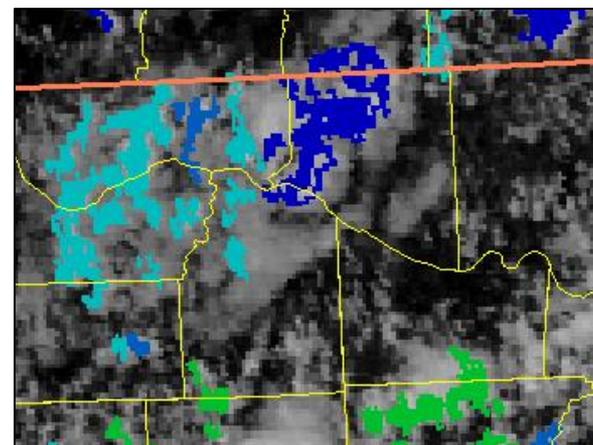


# Transitioned Data: Gridded

- Using baseline GRIB ingest plug-in
- NASA Land Information System
  - Able to properly handle sub-surface variables compared to AWIPS I
  - Being assessed at HUN, HGX, RAH
- GOES-R Convective Initiation
  - Took much too long to load
  - netCDF-based product loads 10x faster



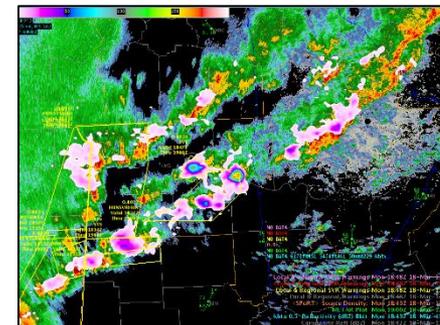
*LIS Soil Moisture*



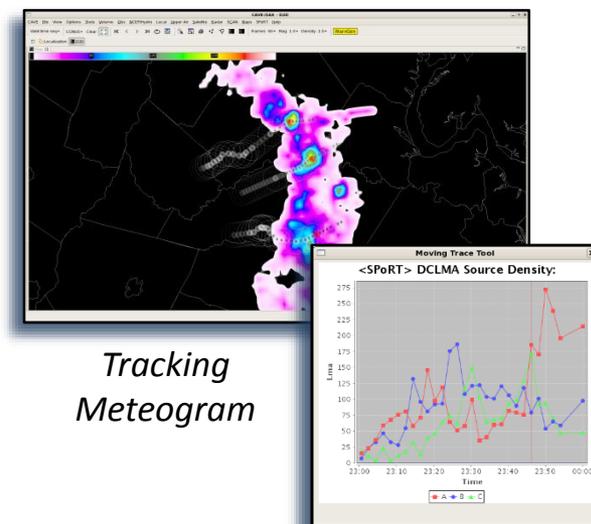
*GOES-R CI*

# SPoRT Plug-Ins

- Lightning Mapping Array (LMA):
  - Same netCDF files are used to support AWIPS I
  - Developed custom plug-ins for ingest and display of LMA, Pseudo GLM, and Earth Networks data
  - Used at 10 sites in/near LMAs
  - Working towards this plug-in being baselined
- Tracking Meteogram
  - Initially developed to track trends in LMA data for identifying lightning jumps
  - Expanded to support myriad of products
  - Supports multiple tracks, variable radii, user-adjustable tracks, and extrapolation for new data (frames)
  - Successfully tested at OPG this year
  - Working towards this plug-in being baselined



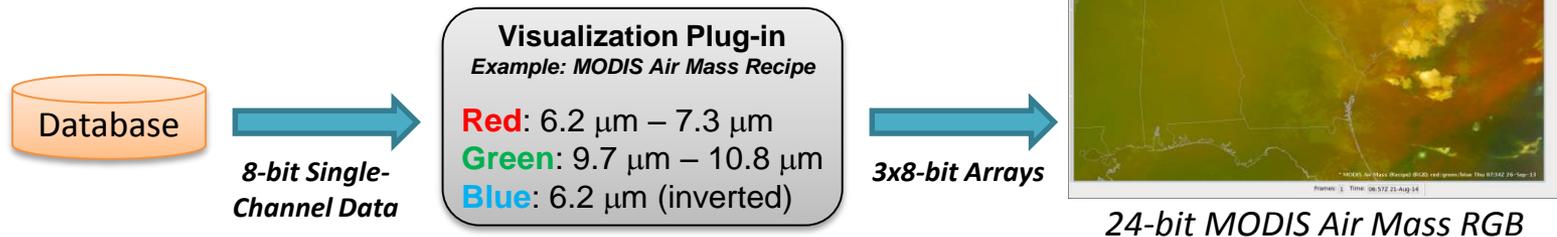
*LMA Data Overlaid on Radar Data*



*Tracking Meteogram*

# 24-Bit RGB Work

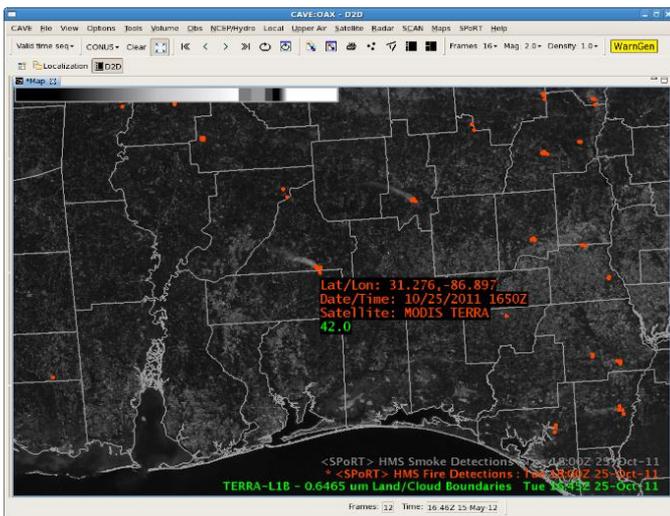
- RGBs are currently pre-generated by SPoRT in 8-bit color
- Developing code to generate 24-bit RGBs on request
- Derived Parameters calculate the **R**, **G**, and **B** channels using single-band source data and EUMETSAT “recipes”
- Benefits:
  - Much greater color fidelity over legacy 8-bit pre-generated products
  - Ability for end-users to modify the recipes
- Deficiencies exist in the baseline code
- SPoRT is able to support either method



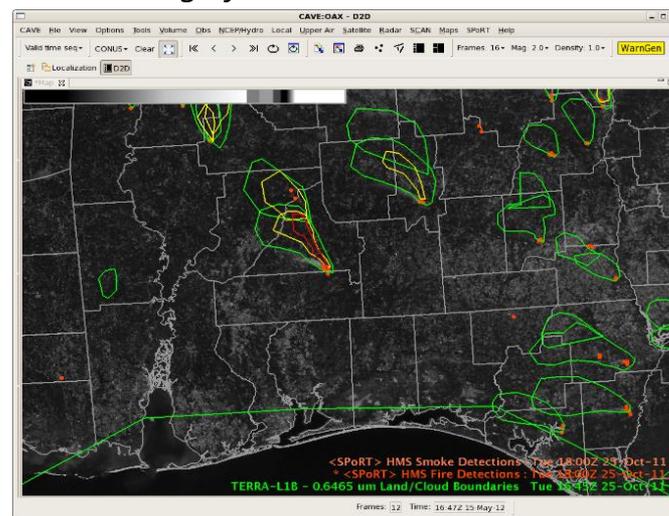
# HMS Fires/Smoke

- Satellite Analysis Branch's Hazard Mapping System (HMS) generates quality-controlled fire and smoke plume detections
- SAB desires these products to be available to WFO's in AWIPS II
- SPoRT has created sample plug-ins to ingest and display the data

*Fire Detections*



*Significant Smoke Plumes*



# National Centers Support

- Utilize the National Centers Perspective (NCP)
  - Mimics NAWIPS
  - Uses NCP ingest and visualization plug-ins
  - Doesn't necessarily have access to D2D products
- NCEP prefers to be the developer and curator of custom NCP plug-ins
- Satellite data:
  - Plan to support NCP with the same AREA files currently used by National Centers in NAWIPS
  - No custom plug-ins will be required – just configuration changes
  - Working with NCEP developers to help with integration



# Future Work

- Support site transition to AWIPS II; ensure product continuity
- Work to baseline existing SPoRT plug-ins
- Continue working with developers at Raytheon and NWS/NCEP
- Develop new plug-ins:
  - 24-bit RGBs; evaluate RGB philosophies
  - GOES-R Derived Parameters
  - HMS Fires/Smoke
- Ensure plug-in compatibility with future AWIPS II builds
- Hybrids using SBN geostationary and SPoRT polar imagery
- Refine capabilities to handle NUCAPS data
- Data Delivery
- Data Fusion



# Questions and Demo

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